CLAIMS

What is claimed is:

1. A method for determining whether to initiate a multicast service from a first base station of a first cell, the method comprising:

receiving a user message transmitted by user equipment positioned in a second cell, wherein the first cell is a neighbour of the second cell, and wherein the user message includes a list of one or more neighbouring cells; and

in response to the user message, initiating the multicast service in the first cell, wherein the first cell is listed in the list of one or more neighbouring cells.

2. The method of claim 1, further comprising:

transmitting, in the second cell from a second base station, a network message to request the user equipment positioned in the second cell to provide neighbouring cell information;

wherein the user message is in response to the network message.

3. The method of claim 1, wherein the list of one or more neighbouring cells is a list of neighbouring cells the user equipment could use for combining if the multicast service is initiated in the listed neighbouring cell.

4. The method of claim 1, wherein the list of one or more neighbouring cells indicates base stations that the user equipment could use for combining if the multicast service is transmitted by the indicated base station.

5. The method of claim 1, wherein the list of one or more neighbouring cells indicates base stations that the user equipment could use for combining.

6. The method of claim 1, wherein the list of one or more neighbouring cells

indicates base stations having transmissions that the user equipment is able to demodulate.

7. The method of claim 1, wherein the list of one or more neighbouring cells indicates base stations having transmissions that the user equipment is able to demodulate.

8. The method of claim 1, wherein the list of one or more neighbouring cells indicates base stations having transmissions that the user equipment is able to detect.

9. The method of claim 1, wherein the user message further includes a signal measurement for each cell in the list of one or more neighbouring cells.

10. The method of claim 9, wherein the signal measurement is indicative of one or more of a signal quality, an error rate, a received signal power level, or a signal-to-noise ratio.

11. The method of claim 9, wherein the signal measurement is indicative of a beacon signal power.

12. The method of claim 9, wherein the signal measurement is indicative of a pilot signal power.

13. The method of claim 9, wherein the signal measurement is indicative of signal power of an existing multicast transmission.

14. The method of claim 1, further comprising the act of transmitting from a second base station in the second cell, an initial message to indicate to the user equipment a list of cells that are neighbours to the second cell.

15. The method of claim 1, further comprising the act of transmitting from a second base station in the second cell, an initial message to wake the user equipment positioned in the second cell from an idle mode.

16. The method of claim 15, wherein the initial message is a page notification message including a set of indicators corresponding to a respective set of multicast services, and wherein each of the indicators indicates whether the second base station is transmitting an updated multicast control channel message.

17. The method of claim 2, wherein the network message includes a cause value that indicates an enhanced counting procedure is invoked for the multicast service.

18. The method of claim 1, further comprising the act of allowing the user equipment to join the multicast service.

19. A method for determining whether to initiate a multicast service in a group of cells in a network, the method comprising:

receiving one or more user messages transmitted by a respective one or more user equipment positioned in the group of cells in the network, wherein each one or more user messages includes a list of one or more neighbouring cells; and

for each cell of the group of cells, accumulating a first count of the user messages having the cell included the list of one or more neighbouring cells; and

for each cell of the group of cells, initiating the multicast service in the cell if the first count for the cell is not zero.

20. The method of claim 19, further comprising:

for each cell of the group of cells, accumulating a second count of the user messages received from user equipment in the cell; and

initiating the multicast service in a cell if the second counter for the cell is not zero.

21. The method of claim 20, wherein the act of includes initiating the multicast service in a cell if the second counter for the cell is not zero:

initiating a point-to-point multicast service in the cell if a sum of the first count and second count is less than a threshold number; and

initiating a point-to-multipoint multicast service in the cell if the sum of the first count and second count is greater than the threshold number.

22. The method of claim 19, wherein the act of initiating the multicast service in a cell if the first count for the cell is not zero includes:

initiating a point-to-point multicast service in the cell if the first count is less than a threshold number; and

initiating a point-to-multipoint multicast service in the cell if the first count is greater than the threshold number.

23. A method to assist in determining whether to initiate a multicast service within a mobile radio network, wherein user equipment is positioned in a first cell of a first base station having a group of neighbouring cells, the method comprising:

determining, for each neighbouring cell in the group of neighbouring cells, whether the user equipment can detect the neighbouring cell;

generating a user message indicating which of the neighbouring cells the user equipment can detect;

transmitting the user message; and

receiving a network message generated responsive to the user message, wherein the network message indicates a new transmission of the multicast service by a second base station in a second cell; wherein the second cell is indicated in the user message.

24. The method of claim 23, further comprising:

receiving a first signal from the first base station transmitting the multicast service;

receiving a second signal from the second base station transmitting the multicast service; and

combining the first and second signals.

25. The method of claim 23, wherein a base station transmission that the user equipment can detect may be combined if the multicast service in enabled on the base station.

26. The method of claim 23, wherein a base station transmission that the user equipment can detect can provide the user equipment with at least a minimum level of service.

27. The method of claim 23, further includes the act of:

determining a signal measurement for each of the neighbouring cells;

wherein the user message further includes the signal measurement for each of the neighbouring cells.

28. The method of claim 23, further includes the act of:

determining a signal measurement for each of the neighbouring cells that are detected;

wherein the user message further includes the signal measurement for each of the neighbouring cells that are detected.

29. The method of claim 28, wherein the signal measurement is indicative of a received beacon signal power.

30. The method of claim 28, wherein the signal measurement is indicative of a

received pilot signal power.

31. A mobile radio system for providing a multicast service, the system comprising:

a network including

a first base station creating a first cell;

a plurality of second base stations creating a respective plurality of second cells;

a plurality of third base stations creating a respective plurality of third cells; and

a memory including accumulated data;

wherein second cells are neighbours of the first cell and the third cells are not neighbours of the first cell; and

a plurality of user equipment each positioned in one cell of the first, second and third cells;

wherein the accumulated data represents user equipment determined to be positioned in the first cell and user equipment determined to be positioned in one of the second cells.

32. The system of claim 31, wherein the accumulated data represents a count of user equipment determined to be positioned in the first cell, and a count of user equipment determined to be positioned in one of the second cells.

33. A method of signalling between user equipment and a network across an air interface, wherein the user equipment is positioned in a first cell created by a first base station, wherein a set of neighbouring base stations create a respective set of

neighbouring cells, and wherein the first base stations transmits on a downlink and the user equipment transmits on an uplink, the method comprising:

signalling, on the downlink, a first list of all neighbours of the first base station;

signalling, on the downlink, an initiation of a counting procedure for a multicast service;

signalling, on the uplink, a second list including an indication of acceptable cells from the first list.

34. The method of claim 33, further comprising signalling, on the uplink, a third list including a signal measurement for each of the acceptable cells from the second list.

35. A method of requesting a multicast service by user equipment in a first cell, wherein the first cell created by a first base station, and wherein the first base station has a group of neighbouring cells created by a respective group of neighbouring base stations, the method comprising:

determining, for one or more of the neighbouring cells, whether a signal from the respective neighbouring base station is receivable by the user equipment;

creating a first list from the receivable neighbouring cells;

generating a user request message, wherein the user request message includes a request for a multicast service and the first list of received neighbouring cells; and

transmitted the user request message from the user equipment to the first base station.

36. The method of claim 35, wherein the act of creating a list from the receivable neighbouring cells includes:

determining whether the receivable signal is combinable by the user equipment; and

including in the first list an indication of cells determined to be combinable.

37. The method of claim 35, further comprising:

determining a signal measurement for each cell in the list of received neighbouring cells;

wherein the user request message further includes the signal measurement for each cell in the list of received neighbouring cells.

38. A method to initiate a multicast service in a group of cells neighbouring a first cell, the method comprising:

transmitting a network message to initiate a response from user equipment in the first cell;

receiving a user message transmitted by the user equipment positioned in the first cell; and

in response to the user message, initiating the multicast service in the group of cells neighbouring the first cell.